

Department of Environmental Quality

Division of Air Quality

Permit Application

1. Company Name: Solvay Soda Ash Joint Venture
2. Mailing address: P.O. Box 1167 (#1 Westvaco Road) Green River, Wyoming 82935
3. Plant name (if different from #1): (same)
4. Plant Location (if different from #2): NE ¼ of Section 31, Township 18 North, Range 109 West

Sweetwater County, Wyoming

Plant Mailing Address: (same as above)

5. Name of Owner: Solvay Soda Ash Joint Venture Phone (307) 875-6500
6. Responsible Official: Richard L. Casey Phone (307) 875-6500
7. Permit application is made for:

X New construction      X Modification  
\_\_\_\_ Relocation      \_\_\_\_ Operation

8. Type of equipment to be constructed, modified, or relocated. (Please list each major piece of equipment separately.)

<u>Covered Ore Storage</u>	<u>Crusher</u>	<u>Screens</u>	<u>Calciner</u>	<u>Rake Classifiers</u>
<u>Tanks</u>	<u>Filters</u>	<u>Crystallizers</u>	<u>Centrifuges</u>	<u>Product Dryer</u>
<u>Silos</u>				

9. If application is being made for operation of an existing source in a new location, list previous location and new location: N/A

Previous location: \_\_\_\_\_

New location: \_\_\_\_\_

10. Crushing Activities: No Open Crushing

a. Primary crushing	Type control equipment <u>Baghouse</u>
b. Secondary crushing	Type control equipment _____
c. Tertiary crushing	Type control equipment _____
d. Recrushing & screening	Type control equipment <u>Baghouse</u>
e. Conveying	Type control equipment <u>Baghouse</u>

10. Crushing Activities Continued:

Proposed dates of operation (month/year)	<b><u>Phase 1 - June, 1999</u></b> <b><u>Phase 2 - January, 2001</u></b> <b><u>Phase 3 - January, 2003</u></b>
1999-06-01 to 1999-06-30	1999-06-01 to 1999-06-30
1999-07-01 to 1999-07-31	1999-07-01 to 1999-07-31
1999-08-01 to 1999-08-31	1999-08-01 to 1999-08-31
1999-09-01 to 1999-09-30	1999-09-01 to 1999-09-30
1999-10-01 to 1999-10-31	1999-10-01 to 1999-10-31
1999-11-01 to 1999-11-30	1999-11-01 to 1999-11-30
1999-12-01 to 1999-12-31	1999-12-01 to 1999-12-31
2000-01-01 to 2000-01-31	1999-12-01 to 1999-12-31
2000-02-01 to 2000-02-28	1999-12-01 to 1999-12-31
2000-03-01 to 2000-03-31	1999-12-01 to 1999-12-31
2000-04-01 to 2000-04-30	1999-12-01 to 1999-12-31
2000-05-01 to 2000-05-31	1999-12-01 to 1999-12-31
2000-06-01 to 2000-06-30	1999-12-01 to 1999-12-31
2000-07-01 to 2000-07-31	1999-12-01 to 1999-12-31
2000-08-01 to 2000-08-31	1999-12-01 to 1999-12-31
2000-09-01 to 2000-09-30	1999-12-01 to 1999-12-31
2000-10-01 to 2000-10-31	1999-12-01 to 1999-12-31
2000-11-01 to 2000-11-30	1999-12-01 to 1999-12-31
2000-12-01 to 2000-12-31	1999-12-01 to 1999-12-31
2001-01-01 to 2001-01-31	1999-12-01 to 1999-12-31
2001-02-01 to 2001-02-28	1999-12-01 to 1999-12-31
2001-03-01 to 2001-03-31	1999-12-01 to 1999-12-31
2001-04-01 to 2001-04-30	1999-12-01 to 1999-12-31
2001-05-01 to 2001-05-31	1999-12-01 to 1999-12-31
2001-06-01 to 2001-06-30	1999-12-01 to 1999-12-31
2001-07-01 to 2001-07-31	1999-12-01 to 1999-12-31
2001-08-01 to 2001-08-31	1999-12-01 to 1999-12-31
2001-09-01 to 2001-09-30	1999-12-01 to 1999-12-31
2001-10-01 to 2001-10-31	1999-12-01 to 1999-12-31
2001-11-01 to 2001-11-30	1999-12-01 to 1999-12-31
2001-12-01 to 2001-12-31	1999-12-01 to 1999-12-31
2002-01-01 to 2002-01-31	1999-12-01 to 1999-12-31
2002-02-01 to 2002-02-28	1999-12-01 to 1999-12-31
2002-03-01 to 2002-03-31	1999-12-01 to 1999-12-31
2002-04-01 to 2002-04-30	1999-12-01 to 1999-12-31
2002-05-01 to 2002-05-31	1999-12-01 to 1999-12-31
2002-06-01 to 2002-06-30	1999-12-01 to 1999-12-31
2002-07-01 to 2002-07-31	1999-12-01 to 1999-12-31
2002-08-01 to 2002-08-31	1999-12-01 to 1999-12-31
2002-09-01 to 2002-09-30	1999-12-01 to 1999-12-31
2002-10-01 to 2002-10-31	1999-12-01 to 1999-12-31
2002-11-01 to 2002-11-30	1999-12-01 to 1999-12-31
2002-12-01 to 2002-12-31	1999-12-01 to 1999-12-31
2003-01-01 to 2003-01-31	1999-12-01 to 1999-12-31
2003-02-01 to 2003-02-28	1999-12-01 to 1999-12-31
2003-03-01 to 2003-03-31	1999-12-01 to 1999-12-31
2003-04-01 to 2003-04-30	1999-12-01 to 1999-12-31
2003-05-01 to 2003-05-31	1999-12-01 to 1999-12-31
2003-06-01 to 2003-06-30	1999-12-01 to 1999-12-31
2003-07-01 to 2003-07-31	1999-12-01 to 1999-12-31
2003-08-01 to 2003-08-31	1999-12-01 to 1999-12-31
2003-09-01 to 2003-09-30	1999-12-01 to 1999-12-31
2003-10-01 to 2003-10-31	1999-12-01 to 1999-12-31
2003-11-01 to 2003-11-30	1999-12-01 to 1999-12-31
2003-12-01 to 2003-12-31	1999-12-01 to 1999-12-31
2004-01-01 to 2004-01-31	1999-12-01 to 1999-12-31
2004-02-01 to 2004-02-28	1999-12-01 to 1999-12-31
2004-03-01 to 2004-03-31	1999-12-01 to 1999-12-31
2004-04-01 to 2004-04-30	1999-12-01 to 1999-12-31
2004-05-01 to 2004-05-31	1999-12-01 to 1999-12-31
2004-06-01 to 2004-06-30	1999-12-01 to 1999-12-31
2004-07-01 to 2004-07-31	1999-12-01 to 1999-12-31
2004-08-01 to 2004-08-31	1999-12-01 to 1999-12-31
2004-09-01 to 2004	

Material	Process Weight Average (lb/hr)	Process Weight Maximum (lb/hr)	Quantity/Year
Trona Ore	468,000	550,000	2.05 MM TPY
H <sub>2</sub> O	156,000	183,000	683,280 TPY

12. Air contaminants emitted:

Emission Point	Pollutant	lb/hr	ton/yr	Basis of Data
AQD #74 (North Headframe BH)	PM <sub>10</sub>	0.34	1.50	estimate @ 0.01 gr/dscf
AQD #75 (Primary Crushing BH)	PM <sub>10</sub>	0.34	1.50	estimate @ 0.01 gr/dscf
AQD #76 (Primary Screening BH)	PM <sub>10</sub>	3.70	16.20	estimate @ 0.01 gr/dscf
AQD #77 (Transfer BH)	PM <sub>10</sub>	0.22	0.97	estimate @ 0.01 gr/dscf
AQD #78 (Transfer BH)	PM <sub>10</sub>	0.27	1.20	estimate @ 0.01 gr/dscf
AQD #79 (Transfer Point DC)	PM <sub>10</sub>	0.21	0.92	estimate @ 0.01 gr/dscf
AQD #80 (Calcliner #4 ESP)	PM <sub>10</sub>	11.93	52.25	estimate @ 0.015 gr/dscf
	NO <sub>x</sub>	20.00	87.60	estimate @ 0.05 lb/MM Btu
	CO	1047.75	4,589	estimate @ 3.81 lb/ton ore (0.07 lb CO/ MMBtu from burner, remainder from calcination of ore)
	VOC	440.00	1,927	estimate @ 1.60 lb/ ton ore
AQD #81 (Dryer Area BH)	PM <sub>10</sub>	1.74	7.62	estimate @ 0.01 gr/dscf
AQD #82 (Dryer ESP)	PM <sub>10</sub>	4.08	17.87	estimate @ 0.01 gr/dscf
	NO <sub>x</sub>	30	131.4	estimate @ 0.15 lb/MM Btu
	CO	14	61.32	estimate @ 0.07 lb/MM Btu
	VOC	0.27	1.18	AP-42
AQD #83 (E2 Silo Top BV)	PM <sub>10</sub>	0.29	1.27	estimate @ 0.01 gr/dscf
AQD #84 (E2 Silo Bottom BF)	PM <sub>10</sub>	0.59	2.58	estimate @ 0.01 gr/dscf
AQD #85 (Industrial Boiler)	PM <sub>10</sub>	0.48	2.10	AP-42
	NO <sub>x</sub>	3.80	16.64	estimate @ 0.038 lb/MM Btu
	CO	9.00	39.42	estimate @ 0.09 lb/MM Btu
	VOC	0.28	1.23	AP-42
	SO <sub>2</sub>	0.06	0.26	AP-42

13. Air contaminant control equipment:

Emission Point	Type	Pollutant Removed	Efficiency
AQD #74	Baghouse	PM <sub>10</sub>	99.99 %
AQD #75	Baghouse	PM <sub>10</sub>	99.99 %
AQD #76	Baghouse	PM <sub>10</sub>	99.99 %
AQD #77	Baghouse	PM <sub>10</sub>	99.99 %
AQD #78	Baghouse	PM <sub>10</sub>	99.99 %
AQD #79	Baghouse	PM <sub>10</sub>	99.99 %
AQD #80	ESP	PM <sub>10</sub>	99.99 %
	Low NO <sub>x</sub> Burner	NO <sub>x</sub>	90.45 %
AQD #81	Baghouse	PM <sub>10</sub>	99.99 %
AQD #82	ESP	PM <sub>10</sub>	99.99 %
	Low NO <sub>x</sub> Burner	NO <sub>x</sub>	71.36 %
AQD #83	Bin Vent	PM <sub>10</sub>	99.99 %
AQD #84	Baghouse	PM <sub>10</sub>	99.99 %
AQD #85	Low NO <sub>x</sub> Burner	NO <sub>x</sub>	71.50 %

14. Type of combustion unit<sub>(check if applicable)</sub> :

A. Coal \_\_\_\_\_

1. Pulverized \_\_\_\_\_:

General \_\_\_\_\_; Dry Bottom \_\_\_\_\_; With Flyash Reinjection \_\_\_\_\_;

2. Spreader Stoker \_\_\_\_\_:

With Flyash Reinjection \_\_\_\_\_; Without Flyash Reinjection \_\_\_\_\_; Cyclone \_\_\_\_\_;

Hand-Fired \_\_\_\_\_;

B. Fuel Oil \_\_\_\_\_

Horizontally Fired \_\_\_\_\_; Tangentially Fired \_\_\_\_\_;

C. Natural Gas   X  

D. If other, please specify \_\_\_\_\_

Hourly fuel consumption (estimate for new equipment) Calciner 386,473 scf/hr  
Dryer 193,237 scf/hr

Size of combustion unit Calciner 400 MM BTU heat input/hour

Dryer 200 MM BTU heat input/hour.

15. Operating Schedule: 24 hours/day; 7 days/week; 52 weeks/year.

Peak production season (if any): None

16. Fuel analysis:

	A. Coal	B. Fuel Oil	C. Natural Gas
% sulfur			negligible
% ash			negligible
BTU Value			1035 Btu/SCF

17. Products of process or units:

Products	Quantity/Year
Soda Ash (anhydrous sodium carbonate)	1.2 MM Tons/Year

18. Emissions to the atmosphere (each point of emission should be listed separately and numbered so that it can be located on the flow sheet):

Emission Point	Stack Height (ft)	Stack Diameter (ft)	Gas Discharged SCFM (DSCFM / ACFM)	Exit Temp (°F)	Gas Velocity (ft/s)
AQD #74	105	1.35	3,749 (3,989 / 5,000)	60	59.7
AQD #75	25	1.35	3,749 (3,970 / 5,000)	60	59.7
AQD #76	25	4.43	40,492 (43,154 / 54,000)	60	58.8
AQD #77	40	1.09	2,437 (2,593 / 3,250)	60	58.8
AQD #78	70	1.21	2,999 (3,191 / 4,000)	60	54.3
AQD #79	70	1.05	2,250 (2,393 / 3000)	60	54.3
AQD #80	180	9.83	128,996 (92,751 / 264,000)	338	57.9
AQD #81	180	3.58	19,221 (20,263 / 35,000)	250	57.9
AQD #82	180	7.08	70,338 (47,555 / 138,000)	305	58.4
AQD #83	130	1.42	3,131 (3,350 / 5,300)	200	56.0
AQD #84	50	2.00	6,499 (6,918 / 11,000)	200	58.4
AQD #85	140	3.00	22,275 / 42,000	325	50.0

19. Does the input material or product from this process or unit contain finely divided materials which could become airborne?

☒ Yes ☐ No

Is this material stored in piles or in some other way as to make possible the creation of dust problems?

☐ Yes ☒ No

List storage piles (if any):

<b>Type of Material</b>	<b>Particle Size (Diameter or Screen Size)</b>	<b>Pile Size (Average Tons on Pile)</b>	<b>Pile Wetted (Yes or No)</b>	<b>Pile Covered (Yes or No)</b>
Trona	8" x 8"	100,000	No	Yes

20. Using a flow diagram:

- (1) Illustrate input of raw materials.
- (2) Label production processes, process fuel combustion, process equipment, and air pollution control equipment.
- (3) Illustrate locations of air contaminant release so that emission points under items 11, 12 and 17 can be identified. For refineries, show normal pressure relief and venting systems. Attach extra pages as needed.

**See Process Flow Diagrams and AQ-300, Soda Ash Expansion II Air Quality Sources Plot Plan**

21. A site map should be included indicating the layout of facility at the site. All buildings, pieces of equipment, roads, pits, rivers and other such items should be shown on the layout.

**See AQ-300, Soda Ash Expansion II Air Quality Sources Plot Plan**

22. A location drawing should be included indicating location of the facility with respect to prominent highways, cities, towns, or other facilities (include UTM coordinates).

**See Figure 2-1, Site Location Map**

*"I certify to the accuracy of the plans, specifications, and supplementary data submitted with this application. It is my opinion that any new equipment installed in accordance with these submitted plans and operated in accordance with the manufacturer's recommendations will meet emission limitations specified in the Wyoming Air Quality Standards and Regulations."*

Signature \_\_\_\_\_

Typed Name **Richard L. Casey**

Title **Vice President**

Company **Solvay Soda Ash Joint Venture**

Mailing Address **P.O. Box 1167, Green River, Wyoming 82935** Telephone **(307) 875-6500**

P.E. Registration (if applicable) **N/A**

State where registered \_\_\_\_\_